M	assachusetts Army National Guard Camp Edwards, Massachusetts	DRAFT									
Confirma Subject	ation of	Date Held Not applicable Location Not applicable Date Issued June 11, 2007 Recorded By Issued By									
	GE SITE PREPARATION PLAN	COL Bill FitzPatrick									
Item	Rei	marks	Action Required By								
1.0	Gibbs Road. The Massachusetts Army preparation activities in anticipation of re Range. This Project Note describes nitroglycerin (NG) concentrations at the content of the	inge is located at the northern central portion of Camp Edwards, just south of s Road. The Massachusetts Army National Guard is conducting certain site aration activities in anticipation of resuming firing using lead ammunition at T									
2.0		JLTS OF PREVIOUS SAMPLING EVENTS iring line at T Range has been sampled several times since 2002 for various iminants of potential concern:									
	Samples were analyzed for SVOC a target analyte using the 8270 me	analytical data is included in the T Rar	not								
	explosives (Method 8330) as v (SVOCs) (Method 8270) and met sections for sampling. The cent evaluate the importance of dista	e collected in April 2006 and analyzed vell as semi-volatile organic compourals. The firing line was divided into the er section was subdivided into two particles from the firing points on contamions were analyzed for explosives. Figures.	unds hree ts to nant								
	areas at the center of the mount 1,3 diethyl 1,3 phenyl urea was als	6,000 ppb (average 36,500 ppb) in sar ded firing line. The propellant compo so detected (average 1,550 ppb). No o was detected at an average concentra	ound other								
	only explosive detected (3,200 p sample was collected from the sar	0-3" at Area 1 Center South. NG was pb). Lead was detected at 386 ppm me area at 9-12" below grade to assess lycerin was detected in this sample and	i. A s the								

• In January 2007, two additional multi-increment samples (primary and replicate) were collected from Area 1 Center North from 0-3" to assess how contaminant concentrations had changed since the previous sampling event nine months earlier. Analyses detected NG at 17,000 and 21,000 ppb (average 19,000 ppb).

3.0 RESULTS OF INVESTIGATION TO ASSESS FIRING POINT AREAS

In order to further define the NG distribution and to assist in developing leaching models, the firing line area was subdivided into 12 approximately equally sized areas of about 2,900 sf each and samples were collected in April 2007. The sample areas are shown on Figure 2. Samples were analyzed for explosives, lead and other metals, pH, and total organic carbon (TOC).

Samples were collected from each area from 0-3" below grade. Within sample areas Center 1 and Center 2, soil profile samples were also collected from 3-6", 6-9", 9-12", 12-18", and 18-24". All samples from within areas Center 1 and Center 2 were also analyzed for NG and its breakdown products by EPA method 8332. All samples were 50-point composites using the CRREL multi-increment sampling method except in areas Center 1 and Center 2 where 30-point samples were collected due to the difficulty of collecting samples to the desired 2-foot depth. Each sample was ground to a fine powder prior to analyses.

The analytical results of the explosives analyses (Method 8330) indicate that elevated concentrations of NG are limited to surface soils in the area directly in front of the 50-caliber firing line mounds (sample areas Center 1, West 1 and East 1). Low concentrations, barely above the reporting limit of the analysis, were also detected in surface soils in two other sample areas. Figure 2 shows the sample locations with the NG concentrations detected at the surface by the 8330 analysis.

Samples collected from 3 inches to a depth of 2 feet below grade in Area Center 1 indicate the presence of low level concentrations of NG slightly above the analytical reporting limit (2,500 ppb). These concentrations are all similar with no apparent trend. NG was not detected in the profile samples from area Center 2.

Table 1 summarizes the NG data from the samples including both the 8330 and the 8332 analyses (where applicable).

4.0 EVALUATION OF NG CONCENTRATIONS

Using the power fitting equations derived for EPA by INEEL (Rood April 11, 2007), the "maximum allowable soil concentration (MASC)" for NG from 0-3 inches below grade from a contaminated area with length parallel to groundwater flow of 40 feet is approximately 8,000 ppb. Only areas Center 1 and West 1 are above that calculated level. Area East 1 had a NG concentration of 6,150 ppb (from four replicate samples) which is near the MASC for surface samples.

From a depth of 3 inches below grade to 2 feet below grade (1.75 feet) the calculated MASC is 1,150 ppb. Since the average of the results from this depth in area Center 1 is slightly greater than this value (3,280 ppb), the soils below 3 inches in area Center 1 may impact to the groundwater. It is assumed that the soils deeper than 3 inches below grade in area West 1 and East 1 would only be lower than the

concentrations at depth in area Center 1 because the surface concentration is considerably lower than in Center 1. Therefore, excavation below 3 inches is also probably not needed in areas West 1 and East 1.

5.0 PLANNED EXCAVATION

The contaminated surface soil in sample areas Center 1, West 1, and East 1 will be excavated and transported off-Tango Range as part of the Mass Guard's range improvement project. The excavation will include these entire sample areas to a depth of 3 inches (approximately 85 cy). Then, the soil in area Center 1 will be excavated to a depth of 24 inches below the original grade (i.e. 21 additional inches) (approximately 200 cy). That soil will be stockpiled and managed separately from the surface soils because the NG concentration below 3 inches is much lower based on the pre-excavation sampling.

All of the excavated soil will be transported to the existing stockpile area at KD and/or C Range which was generated during the Mass Guard's berm maintenance program in May 2006. The soil will be stockpiled on and covered with poly sheeting (minimum 6 mil thickness).

Once the excavation is complete, post-excavation samples will be collected from all three areas to document the concentrations remaining in the soil, if any. Areas West 1 and East 1 will be sampled to provide separate composite samples at three different depths (0-6", 6-12", and 12-18"). 30 aliquots will be collected from each of these areas using the CRREL multi-increment approach to obtain a representative composite sample. In area Center 1, the post-excavation sample will be a 30-aliquot composite sample also following the CRREL approach collected from the bottom of the excavation to a depth of 3 inches.

Each sample will be ground by CRREL and analyzed by STL laboratories by EPA method 8332 which is specifically intended for analysis of NG. This analysis provides a reporting limit (1,000 ppb) that is equal to the MASC for up to 24" of soil depth as derived by EPA.

If NG is detected in post excavation samples at concentrations above the MASCs, lysimeters can be installed to determine if NG is leaching to the pore water. If sampling indicates that the remaining soil does not contain NG above the MASC, there will be no need to install lysimeters because there would be no contaminant to detect in the pore water.

6.0 SCHEDULE

Excavation and transport of the soil is currently scheduled to be begin June 13, 2007. Confirmatory samples will be collected upon completion and then the reconstruction of the excavated area will be completed prior to a return to firing on the range, currently scheduled for July 2, 2007.

7.0 ENCLOSURES

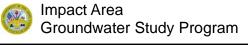
Figure 1: T Range Historic Sampling

Figure 2: T Range Firing Line Sampling

Table 1: Soil Sampling Results - Preliminary

8.0	SIGNATURES		
	The signatures below confirm concurren	ce with this project note.	
	EPA Representative	MassDEP Representative	
	MAARNG Representative		



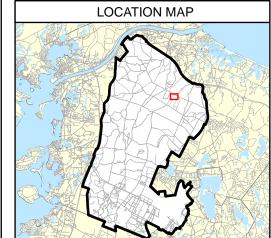


LEGEND

Sampling Grids GroundwaterFlowDirection

Soil Grid

Monitoring Well



NOTES & SOURCES

Basemap data from US Geological Survey 7 1/2 minute Topographic Maps: Source: MassGIS Aerial Photos: Color Digital Orthophotos; Date Flown: 2002 Source: EarthData International

TITLE

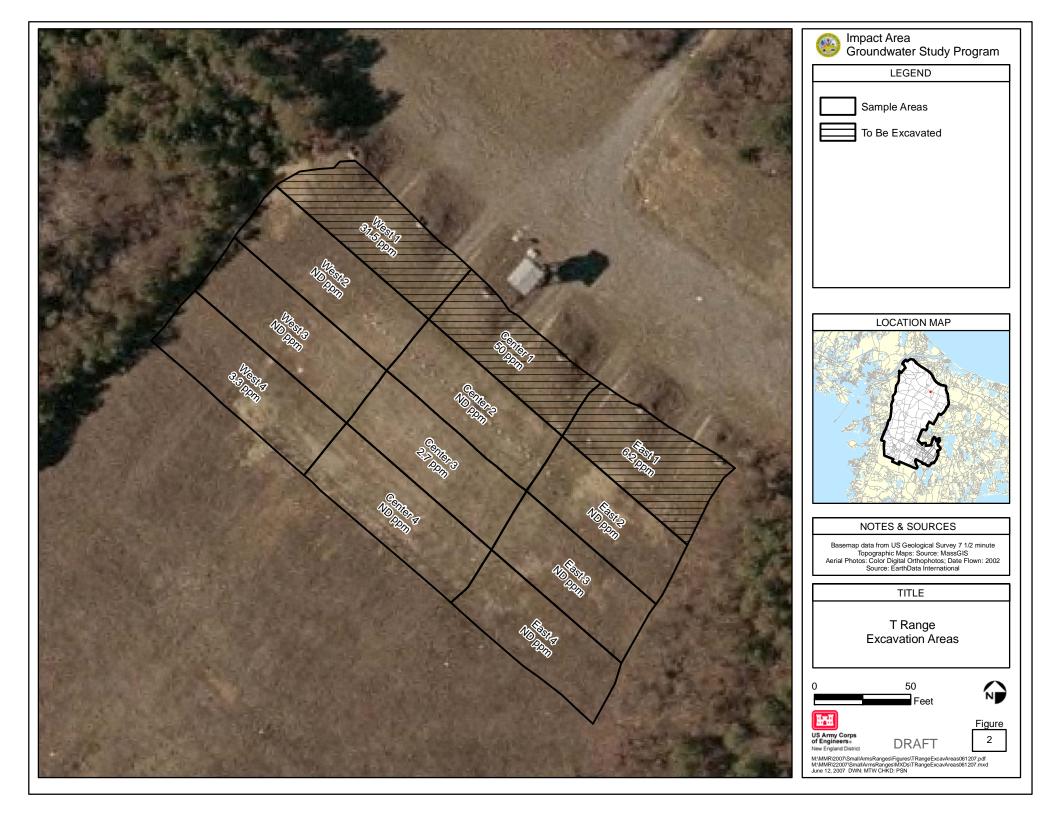
T Range **Project Note Sampling Results**





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M:\MMR\2006\TangoRange\110706\Fig3-4_121206.pdf M:\MMR\2006\TangoRange\110706\Fig3-4_121206.mxd December 12, 2006 DWN: MTW CHKD: SEL



Area of Concern	Location	Sample ID	Date	Top of Sampling Interval (inches)	Bottom of Sampling Interval (inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	W-1	SSTRW1S-0-3-01	4/18/2007	0	3		Nitoglycerine	33000	Quai	2500	ug/Kg
Tango Range	W-1	SSTRW1S-0-3-01	4/18/2007	0	3	SW9045	pH	6.1		0	SU
Tango Range	W-1	SSTRW1S-0-3-01	4/18/2007	0	3	TOC - LK	Total Organic Carbon	25700		500	mg/Kg
Tango Range	W-1	SSTRW1S-0-3-01	4/18/2007	0	3		Nitoglycerine	30000		2500	ug/Kg
Tango Range	W-1	SSTRW1S-0-3-02	4/18/2007	0	3	SW9045	pH	6.2		0	SU
Tango Range	W-1	SSTRW1S-0-3-02	4/18/2007	0	3	TOC - LK	Total Organic Carbon	25300		500	mg/Kg
Tango Range	W-1	SSTRW1S-0-3-03	4/18/2007	0	3		Nitoglycerine	33000		2500	ug/Kg
Tango Range	W-1	SSTRW1S-0-3-03	4/18/2007	0	3		pH	5.9		0	SU
Tango Range	W-1	SSTRW1S-0-3-03	4/18/2007	0	3	TOC - LK	Total Organic Carbon	26800		500	mg/Kg
Tango Range	W-1	SSTRW1S-0-3-04	4/18/2007	0	3		Nitoglycerine	30000		2500	ug/Kg
Tango Range	W-1	SSTRW1S-0-3-04	4/18/2007	0	3	SW9045	pH	5.9		0	SU
Tango Range	W-1	SSTRW1S-0-3-04	4/18/2007	0	3	TOC - LK	Total Organic Carbon	30500		500	mg/Kg
rango rango	1	0011111100001	1710/2007	Ů	, ,	TOO LIK	Total Organic Garbon	00000		- 000	mg/rtg
Tango Range	W-2	SSTRW2S-0-3-01	4/17/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	W-2	SSTRW2S-0-3-01	4/17/2007	0	3		pH	7.1	Ť	0	SU
Tango Range	W-2	SSTRW2S-0-3-01	4/17/2007	0	3		Total Organic Carbon	18700		500	mg/Kg
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Tango Range	W-3	SSTRW3S-0-3-01	4/18/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	W-3	SSTRW3S-0-3-01	4/18/2007	0	3		pH	6.1		0	SU
Tango Range	W-3	SSTRW3S-0-3-01	4/18/2007	0	3	TOC - LK	Total Organic Carbon	42600		500	mg/Kg
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Tango Range	W-3 Duplicate	SSTRW3S-0-3-01D	4/18/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	W-3 Duplicate	SSTRW3S-0-3-01D	4/18/2007	0	3		pH	6.4		0	SU
Tango Range	W-3 Duplicate	SSTRW3S-0-3-01D	4/18/2007	0	3	TOC - LK	Total Organic Carbon	44500		500	mg/Kg
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Tango Range	W-4	SSTRW4S-0-3-01	4/17/2007	0	3	SW8330	Nitoglycerine	3300		2500	ug/Kg
Tango Range	W-4	SSTRW4S-0-3-01	4/17/2007	0	3	SW9045	Hq	7.1		0	SU
Tango Range	W-4	SSTRW4S-0-3-01	4/17/2007	0	3	TOC - LK	Total Organic Carbon	16300		500	mg/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW8330	Nitoglycerine	50000		2500	ug/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3		Nitoglycerine and degradation by products	43000		1000	ug/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3		2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW9045		6.7		0	SU
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	TOC - LK	Total Organic Carbon	19400		500	mg/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW6010	Antimony	0.62	В	0.16	mg/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3	SW6010	Copper	12.8		1.6	mg/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3		Lead	137		1.6	mg/Kg
Tango Range	C-1	SSTRC1S-0-3-01	4/20/2007	0	3		Zinc	19.6		0.5	mg/Kg
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				Top of	Bottom of						
				Sampling	Sampling						
				Interval	Interval						
Area of Concern	Location	Sample ID	Date	(inches)	(inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW8330	Nitoglycerine	3800		2500	ug/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW8332	Nitoglycerine and degradation by products	1600		1000	ug/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW9045	рН	6.5		0	SU
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	TOC - LK	Total Organic Carbon	8030		500	mg/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW6010	Copper	12.7		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW6010	Lead	45.9		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-3-6-01	4/24/2007	3	6	SW6010	Zinc	22.3		0.5	mg/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW8332	Nitoglycerine and degradation by products	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW9045	pH	6.4		0	SU
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	TOC - LK	Total Organic Carbon	7830		500	mg/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW6010	Copper	8.2		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW6010	Lead	49.9		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-6-9-01	4/24/2007	6	9	SW6010	Zinc	22.1		0.5	mg/Kg
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Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW8330	Nitoglycerine	2600		2500	ug/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW8332	Nitoglycerine and degradation by products	1400		1000	ug/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW9045	На	6.4		0	SU
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	TOC - LK	Total Organic Carbon	6780		500	mg/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12		Copper	7.8		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12		Lead	26.4		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-9-12-01	4/24/2007	9	12		Zinc	24.9	1	0.5	mg/Kg
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Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW8330	Nitoglycerine	3800	1	2500	ug/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18		Nitoglycerine and degradation by products	1200	1	1000	ug/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18		1-mono-nitroglycerin	ND	U	5000	ug/Kg
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Area of Concern	Location	Sample ID	Date	Top of Sampling Interval (inches)	Bottom of Sampling Interval (inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW9045	pH	6.2		0	SU
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	TOC - LK	Total Organic Carbon	5900		500	mg/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW6010	Antimony	0.2	В	0.16	mg/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW6010	Copper	7.4		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW6010	Lead	10.4		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-12-18-01	4/24/2007	12	18	SW6010	Zinc	22.6		0.5	mg/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW8330	Nitoglycerine	3700		2500	ug/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW8332	Nitoglycerine and degradation by products	2100		1000	ug/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW9045	pH	6.2		0	SU
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	TOC - LK	Total Organic Carbon	5050		500	mg/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW6010	Copper	8.2		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW6010	Lead	10.9		1.6	mg/Kg
Tango Range	C-1	SSTRC1D-18-24-01	4/24/2007	18	24	SW6010	Zinc	23.4		0.5	mg/Kg

				Top of	Bottom of						
				Sampling	Sampling						
Area of Concern	Location	Sample ID	Date	Interval (inches)	Interval (inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3		Nitoglycerine and degradation by products	1100	0	1000	
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg ug/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg ug/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg ug/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3		pH	7.2	-	0	SU
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3		Total Organic Carbon	12300		500	mg/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW6010	Antimony	2.7	В	0.16	mg/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW6010	Copper	35		1.6	mg/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW6010	Lead	518		1.6	mg/Kg
Tango Range	C-2	SSTRC2S-0-3-01	4/20/2007	0	3	SW6010	Zinc	23.1		0.5	mg/Kg
range range	0.2	00111020 0 0 01	4/20/2001		Ü	0110010	Ziiio	20.1		0.0	mg/rtg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6		Nitoglycerine and degradation by products	ND	Ü	1000	ug/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW8332	1,2-Dinitroglycerin	ND	Ü	1000	ug/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW8332	1,3-Dinitroglycerin	ND	Ü	1000	ug/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW8332	1-mono-nitroglycerin	ND	Ü	5000	ug/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW8332	2-mono-nitroglycerin	ND	Ü	5000	ug/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW9045	pH	7.0	-	0	SU
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	TOC - LK	Total Organic Carbon	9740		500	mg/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW6010	Antimony	0.83	В	0.16	mg/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW6010	Copper	19.2		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW6010	Lead	206		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-3-6-01	4/24/2007	3	6	SW6010	Zinc	28		0.5	mg/Kg
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Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW8332	Nitoglycerine and degradation by products	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW9045	pH	6.8		0	SU
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	TOC - LK	Total Organic Carbon	11500		500	mg/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW6010	Antimony	0.72	В	0.16	mg/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW6010	Copper	9.7		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW6010	Lead	193		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-6-9-01	4/24/2007	6	9	SW6010	Zinc	31.7		0.5	mg/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW8332	Nitoglycerine and degradation by products	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg

Area of Concern	Location	Sample ID	Date	Top of Sampling Interval (inches)	Bottom of Sampling Interval (inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW9045	pH	6.5		0	SU
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	TOC - LK	Total Organic Carbon	9450		500	mg/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW6010	Copper	8.3		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12		Lead	96.3		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-9-12-01	4/24/2007	9	12	SW6010	Zinc	31		0.5	mg/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW8332	Nitoglycerine and degradation by products	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW9045	рН	6.2		0	SU
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	TOC - LK	Total Organic Carbon	7520		500	mg/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW6010	Copper	10.4		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW6010	Lead	40.7		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-12-18-01	4/24/2007	12	18	SW6010	Zinc	32.4		0.5	mg/Kg

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				Top of	Bottom of						
				Sampling	Sampling						
				Interval	Interval						
Area of Concern	Location	Sample ID	Date	(inches)	(inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW8332	Nitoglycerine and degradation by products	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW8332	1,2-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW8332	1,3-Dinitroglycerin	ND	U	1000	ug/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW8332	1-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW8332	2-mono-nitroglycerin	ND	U	5000	ug/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW9045	pH	6.2		0	SU
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	TOC - LK	Total Organic Carbon	5330		500	mg/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW6010	Copper	21.8		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW6010	Lead	37.9		1.6	mg/Kg
Tango Range	C-2	SSTRC2D-18-24-01	4/24/2007	18	24	SW6010	Zinc	33.1		0.5	mg/Kg
Tango Range	C-3	SSTRC3S-0-3-01	4/18/2007	0	3	SW8330	Nitoglycerine	2700		2500	ug/Kg
Tango Range	C-3	SSTRC3S-0-3-01	4/18/2007	0	3	SW9045	pH	7.1		0	SU
Tango Range	C-3	SSTRC3S-0-3-01	4/18/2007	0	3	TOC - LK	Total Organic Carbon	29900		500	mg/Kg
Tango Range	C-4	SSTRC4S-0-3-01	4/17/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-4	SSTRC4S-0-3-01	4/17/2007	0	3	SW9045	pH	7.2		0	SU
Tango Range	C-4	SSTRC4S-0-3-01	4/17/2007	0	3	TOC - LK	Total Organic Carbon	11000		500	mg/Kg
Tango Range	C-4 Duplicate	SSTRC4S-0-3-01D	4/17/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	C-4 Duplicate	SSTRC4S-0-3-01D	4/17/2007	0	3	SW9045	pH	7.4		0	SU
Tango Range	C-4 Duplicate	SSTRC4S-0-3-01D	4/17/2007	0	3	TOC - LK	Total Organic Carbon	10100		500	mg/Kg
Tango Range	E-1	SSTRE1S-0-3-01	4/18/2007	0	3	SW8330	Nitoglycerine	4300		2500	ug/Kg
Tango Range	E-1	SSTRE1S-0-3-01	4/18/2007	0	3	SW9045	pН	6.0		0	SU
Tango Range	E-1	SSTRE1S-0-3-01	4/18/2007	0	3	TOC - LK	Total Organic Carbon	18300		500	mg/Kg
Tango Range	E-1	SSTRE1S-0-3-02	4/18/2007	0	3	SW8330	Nitoglycerine	8200		2500	ug/Kg
Tango Range	E-1	SSTRE1S-0-3-02	4/18/2007	0	3	SW9045	pH	6.0		0	SU
Tango Range	E-1	SSTRE1S-0-3-02	4/18/2007	0	3	TOC - LK	Total Organic Carbon	18900		500	mg/Kg
Tango Range	E-1	SSTRE1S-0-3-03	4/18/2007	0	3	SW8330	Nitoglycerine	6900		2500	ug/Kg
Tango Range	E-1	SSTRE1S-0-3-03	4/18/2007	0	3	SW9045	pH	5.9		0	SU
Tango Range	E-1	SSTRE1S-0-3-03	4/18/2007	0	3		Total Organic Carbon	18500		500	mg/Kg
Tango Range	E-1	SSTRE1S-0-3-04	4/18/2007	0	3		Nitoglycerine	5300		2500	ug/Kg
Tango Range	E-1	SSTRE1S-0-3-04	4/18/2007	0	3	SW9045		5.9		0	SU
Tango Range	E-1	SSTRE1S-0-3-04	4/18/2007	0	3		Total Organic Carbon	20100		500	mg/Kg
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Tango Range	E-2	SSTRE2S-0-3-01	4/18/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	E-2	SSTRE2S-0-3-01	4/18/2007	0	3		pH	6.0		0	SU
Tango Range	E-2	SSTRE2S-0-3-01	4/18/2007	0	3		Total Organic Carbon	41100		500	mg/Kg
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Tango Range	E-3	SSTRE3S-0-3-01	4/18/2007	0	3	SW8330	Nitoglycerine	ND	U	2500	ug/Kg

Tango Range - Preliminary Data

Area of Concern	Location	Sample ID	Date	Top of Sampling Interval (inches)	Bottom of Sampling Interval (inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	E-3	SSTRE3S-0-3-01	4/18/2007	0	3	SW9045	pH	6.1		0	SU
Tango Range	E-3	SSTRE3S-0-3-01	4/18/2007	0	3	TOC - LK	Total Organic Carbon	37000		500	mg/Kg

Area of Concern	Location	Sample ID	Date	Top of Sampling Interval (inches)	Bottom of Sampling Interval (inches)	Method	Analyte	Result	Qual	RL	Units
Tango Range	E-4	SSTRE4S-0-3-01	4/19/2007	0	3		Nitoglycerine	ND	U	2500	ug/Kg
Tango Range	E-4	SSTRE4S-0-3-01	4/19/2007	0	3		рН	6.5		0	SU
Tango Range	E-4	SSTRE4S-0-3-01	4/19/2007	0	3	TOC - LK	Total Organic Carbon	15800		500	mg/Kg
Tango Range		CRREL Blank 1	4/24/2007			SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range		CRREL Blank 1	4/24/2007			SW9045	pH	8.3		0	SU
Tango Range		CRREL Blank 1	4/24/2007			TOC - LK	Total Organic Carbon	ND	U	500	mg/Kg
Tango Range		CRREL Blank 2	4/24/2007			SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range		CRREL Blank 2	4/24/2007			SW9045	pH	8.2		0	SU
Tango Range		CRREL Blank 2	4/24/2007			TOC - LK	Total Organic Carbon	ND	U	500	mg/Kg
Tango Range		CRREL Blank 4-24-07	4/27/2007			SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range		CRREL Blank 4-24-07	4/27/2007			SW9045	pH	8.2		0	SU
Tango Range		CRREL Blank 4-24-07	4/27/2007			TOC - LK	Total Organic Carbon	ND	U	500	mg/Kg
Tango Range		CRREL Blank 4-24-07	4/27/2007			SW6010	Antimony	ND	U	0.16	mg/Kg
Tango Range		CRREL Blank 4-24-07	4/27/2007			SW6010	Copper	4.2		1.6	mg/Kg
Tango Range		CRREL Blank 4-24-07	4/27/2007			SW6010	Lead	3.7		1.6	mg/Kg
Tango Range		CRREL Blank 4-24-07	4/27/2007			SW6010	Zinc	15.4		0.5	mg/Kg
Tango Range		CRREL Blank 4-25-07	4/27/2007			SW8330	Nitoglycerine	ND	U	2500	ug/Kg
Tango Range		CRREL Blank 4-25-07	4/27/2007			SW9045	pH	8.0		0	SU
Tango Range		CRREL Blank 4-25-07	4/27/2007			TOC - LK	Total Organic Carbon	ND	U	500	mg/Kg
Tango Range		CRREL Blank 4-25-07	4/27/2007			SW6010	Antimony	0.39	В	0.16	mg/Kg
Tango Range		CRREL Blank 4-25-07	4/27/2007			SW6010	Copper	8.3		1.6	mg/Kg
Tango Range		CRREL Blank 4-25-07	4/27/2007			SW6010	Lead	68.4		1.6	mg/Kg
Tango Range		CRREL Blank 4-25-07	4/27/2007			SW6010	Zinc	16.2		0.5	mg/Kg

FLDSAMPID Scheme -

Soil Sample SS TR Tango Range

West, Center, or East section W, C, E Section distance from Firing Line Surfical or Depth Sample 1, 2, 3, 4

S, D

Depth of sample interval in inches from surface (ex. 0-3 inches) Sequential sample number -0-3-

-01, -02, etc.

Notes:

All samples were ground at CRREL prior to extraction and analysis CRREL BLANK - Two blanks are provided by CRREL with each Sample Delivery Group (SDG)

^{*} Data has NOT been validated